

In the Claims

Please cancel Claims 29 and 30.

Please amend Claims 1, 2, 4, 8, 10, 12, 14, 15, 22, 24 and 28. Amendments to the claims are indicated in the attached “Marked Up Version of Amendments” (pages i - iii).

1. (Amended) An isolated nucleic acid molecule selected from the group consisting of SEQ ID NOS: 48-56 and 88-90.
2. (Amended) An isolated nucleic acid molecule comprising a polynucleotide sequence that hybridizes under high stringency conditions to a sequence selected from the group consisting of SEQ ID NOS: 48-56, 88-90 and complementary sequences thereof.
4. (Amended) An isolated nucleic acid molecule consisting of about 15 to 50 consecutive nucleotides from a nucleotide sequence according to Claim 1.
8. (Amended) An isolated nucleic acid molecule comprising a polynucleotide sequence of about 20 to 50 nucleic acids that hybridizes under high stringency conditions to a sequence according to Claim 1, or a complementary sequence thereof.
10. (Amended) An isolated nucleic sequence molecule selected from the group consisting of SEQ ID NOS: 30-39.
12. (Amended) An isolated nucleic sequence molecule consisting of a polynucleotide sequence that hybridizes under high stringency conditions to a sequence selected from the group consisting of SEQ ID NOS: 30-39, or a complementary sequence thereof.
14. (Amended) A method of detecting the presence or absence of a mutation or a polymorphism in DYT1 in a mammal, comprising the steps of:

- (a) contacting a test sample comprising the neuronal gene with at least one nucleic acid sequence selected from the group consisting of SEQ ID NOS: 30-39;
 - (b) maintaining the test sample DNA and the nucleic acid sequence under conditions suitable for interaction; and
 - (c) detecting the interaction between the test sample DNA and the nucleic acid sequences.
15. (Amended) The method of Claim 14, wherein the DYT1 gene is TOR1A.
22. (Amended) The method of Claim 14, further comprising the steps of:
- (d) isolating the test sample DYT1 gene; and
 - (e) determining the sequence of the isolated gene.
24. (Amended) A method of detecting the presence or absence of torsin dystonia in a mammal comprising detecting the presence or absence of one or more mutations in DYT1, comprising the steps of:
- (a) contacting a test sample comprising DYT1 with a nucleic acid sequence selected from the group consisting of SEQ ID NOS: 30-39;
 - (b) maintaining the test sample and the nucleic acid sequence under conditions suitable for interaction; and
 - (c) detecting the interaction between the test sample and nucleic acid sequence.
28. (Amended) A DYT1 gene comprising a gene mutation resulting in torsion dystonia in a mammal detected by a method comprising the steps of:
- (a) contacting a test sample comprising the gene with a nucleic acid sequence selected from the group consisting of SEQ ID NOS: 30-39;
 - (b) maintaining the test sample and the nucleic acid sequence under conditions suitable for interaction; and
 - (c) detecting the interaction between the test sample and nucleic acid sequence, wherein the gene mutation results in torsion dystonia.